
Call-Back Queuing

The CBQ is an ESN node feature which provides queuing for network calls which encounter busy or blocked facilities at the ESN node. CBQ enables the calling party to go on-hook after activation of the Ring Again feature and receive a callback from the ESN node when a network facility becomes available. See the *X11 Features and Services* NTP.

The CBQ feature is available only to stations located at an ESN node. Unlike OHQ, CBQ is offered only at the originating ESN node. Access to CBQ is accomplished through the existing Ring Again feature.

Options

Two options for CBQ eligibility are defined by the call originator's NCOS. The first option, CBQ(i), means that CBQ may be offered after only the initial route set of a route list has been examined for an available route. The second option, CBQ(a), means that CBQ may be offered after both the initial and extended (for example, all) route sets of a route list have been examined. In either case, a call offered CBQ is first queued against the initial route set.

Eligibility

Before offering CBQ to a call originator, the following eligibility tests are performed:

- At least one of the routes in the initial route set is defined as CBQ eligible.
- The user's NCOS is defined as permitting CBQ; either CBQ(i) or CBQ(a).
- The call is not eligible for OHQ. Calls that are eligible for both OHQ and CBQ will be offered OHQ.
- The user's telephone is allowed access to the Ring Again feature and does not have another CBQ or Ring Again call already in the queue.
- The CBQ feature is enabled for this customer.

CBQ(i) eligible For call originations by a caller defined as CBQ(i) eligible, the system searches the initial route set for an available route. If no available route is found, CBQ is offered to the caller subject to the CBQ eligibility tests.

CBQ(a) eligible For call originations by a caller defined as CBQ(a) eligible, the system examines the initial route set for an available route. If no available route is found, the extended route set is then searched for an available route. If an available route is not found in the extended set, then CBQ is offered, subject to the CBQ eligibility tests. However, if an available route in the extended route set is found that is designated as expensive, and the user's NCOS allows ERWT, and ERWT is enabled for the customer, the tone is given and the system delays terminating the call. During this delay the user has the following options:

- Refuse the expensive route by abandoning the call.
- Wait, and allow the call to complete over the expensive route.
- Activate the Ring Again feature (feature key or access code) to place the call in the CBQ. The user must be CBQ(a) eligible; otherwise, operation of the Ring Again feature is ignored.

Offer

The CBQ offer consists of an optional recorded announcement, followed by overflow tone. If the user wishes to accept the CBQ offer, Ring Again must be activated within 30 seconds. Ring Again activation follows present feature operation for SL-1 and 500/2500 telephones. See the *X11 Features and Services* NTP. The CBQ offer can be refused by going on-hook. If the user neither accepts nor refuses the CBQ offer within 30 seconds, the call is force disconnected. If the user wishes to accept the CBQ offer, Ring Again must be activated within the programmed time (default is 20 seconds).

CBQ calls are placed in a priority-ordered trunk queue (together with OHQ calls, if any) with a starting priority and maximum priority (see LD 87) defined by the call originator's NCOS. (Refer to Off-Hook Queuing for additional information on priority queuing.) At the same time, two timers are started, a queue promotion timer and a route advance timer. Each timer is started with values defined through the originator's NCOS

At intervals defined by the queue promotion timer, the priority of the call is incremented until it reaches its maximum priority.

Each time the call priority is incremented, its position in the CBQ is advanced. If the route advance timer reaches its maximum value before the call can be terminated on a route in the initial set, the extended set of routes is added to the routes that the call is currently queued against.

Note: An RADT timer set to "0" never expires. The user always queues for I set routes only.

Expensive route warning tone is not given to calls which have been queued, even if terminated on expensive facilities. Unless cancelled by the call originator, CBQ calls remain in the queue until they have been offered a trunk; there is no time limit on CBQ calls. Calls can only be routed on routes in the I set or extended set if the FRL in the NCOS is equal to or greater than FRL assigned to the route in the route list.

Callback

When a trunk becomes available for a CBQ call, it is seized to prevent incoming originations during the CBQ callback period. Outpulsing of digits (either those originally dialed by the user or those required as a result of digit manipulation) is started at a slow, fixed rate. The number or digits to be outpulsed determines how long the trunk can be held while the CBQ callback is being offered to the originating station. The system computes this time by allowing 10 seconds before the first digit is outpulsed and 256 seconds between subsequent digits.

The originator of the call is alerted to the CBQ callback by either tone buzzing and a winking Ring Again feature lamp (SL-1 telephone), or short bursts of ringing (500/2500 telephone). The SL-1 telephone user must accept the callback within the computed value of outpulse time or the service-changeable CBQ time limit of 10 to 30 seconds, whichever is less. A user with a 500/2500 telephone must accept the callback within 6 seconds. Acceptance of the CBQ callback is performed with present Ring Again operating procedures.

When a CBQ callback is answered at a digit display SL-1 telephone, the originally dialed digits are displayed. If the user does not answer the callback within the time limit, the call is removed from the queue and discarded. If the user accepts the callback within the time limit, the call is terminated. A CBQ call can be cancelled by the originating station by means of the existing procedures for Ring Again cancellation.

Feature interactions

The CBQ feature interacts with the following features:

Barge-In, Force Disconnect

Between the time a trunk is seized for a CBQ call and the user accepts the CBQ callback, the trunk can be stolen by the attendant or force disconnected through service change. If this occurs, there is no guarantee that the call can be terminated when the user accepts the CBQ callback. Under these circumstances, the call is treated like a new origination and NARS/BARS is used to reattempt termination. This can result in the call being blocked and being offered CBQ a second time.

Hunting, Call Forward, Multiple Appearance DN

CBQ call backs to stations at an ESN node are offered only to the originating station, regardless of the hunting or call forwarding which may be in effect. Other appearances of a station's Directory Number (DN) are not offered the callback.

Attendant functions

Because the Ring Again feature is not supported at attendant consoles, CBQ is not offered to an attendant regardless of the CBQ eligibility of the NCOS assigned to the attendant.

